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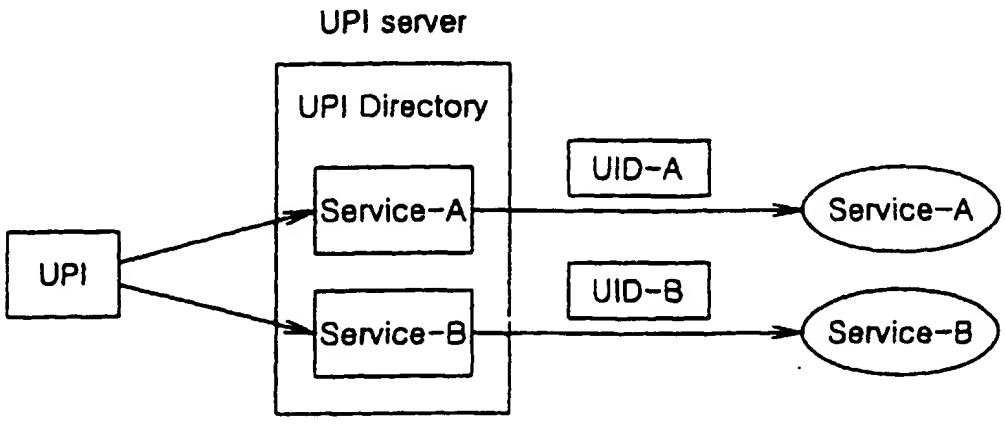

(57) Abstract: The present invention provides methods and systems that allow a service user to access one or more various services using a single identifier ("ID"), without being restricted by formats of IDs defined by various individual services. According to the method and the system for accessing multiple services using a single ID of the present invention, a registered single ID user ("single ID registrant") manages and uses only a single ID and thus does not need to manage multiple IDs for individual services. Furthermore, even if a service provider for a particular service is changed and a corresponding ID is changed accordingly, the user does not need to spend time or efforts to announce such change in his or her ID.

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THE METHOD AND THE SYSTEM FOR ACCESSING MULTIPLE SERVICES USING A SINGLE IDENTIFIER

TECHNICAL FIELD

The present invention relates to methods and systems for accessing one or more services using a single ID.

BACKGROUND ART

In general, a service requires each user to have an ID as the user's identifier and a user may access and obtain the service only by using such ID.

Most of these user IDs are different from each other by services or even by service providers of one type of service. For example, an electronic mail ("email") address is a user ID for the email service, a telephone number for the telephone service, a credit card number for the credit card payment service on the Internet, and an inherent electronic money service ID for use of the electronic money service, etc.

Moreover, the format of IDs may not be determined by a user but must be in accordance with the configuration specified by a service provider of a particular service.

A user, therefore, must manage these various IDs for different services and in case of a change in a particular ID, must spend time and efforts to announce the changed ID.

The prior art has this disadvantage that a user must manage various user IDs, each of which is specified by each service, while more and more services are available due to the development of the information technology through the Internet and due to the increasing diversity in communication methods.

DISCLOSURE OF THE INVENTION

The present invention, in order to solve the problems in the prior art described above, has its object in providing unified single IDs which may be adopted by users regardless of service types or service providers, and in providing methods and systems for accessing various services using such unified single IDs.

First of all, below are the explanations of the terms used in the description of the present invention's methods for accessing multiple services using single IDs.

<Terms>

The single ID is an identifier of a definite length comprising numbers, symbols and characters (including multi-lingual characters), which may be used as a unified identifier for various services.

The UPI (Unique Permanent Identification) is a type of single ID which may be used by a registered user permanently without any alteration in his or her single ID and which suits best the single ID services.

The UID (Unique Identification) is an identifier distinguishing a subscriber within an individual service system. The UID is defined differently by the specification or implementation of each service. Telephone numbers, email addresses, and home page addresses are the examples.

The PACD (Personal Application Context Data) is the data required to provide individual services for a user who requests the services. The PACD includes the above-described UID. An individual's address or birthday is an example of the PACD for a directory service and a credit card number may be an example of PACD for the e-commerce service.

The UPAD (UPI and Service Access Descriptor) is a data object which includes information necessary to convert the UPI to the UID or to the PACD, UPI and the

interpretation method (SAD).

The SAD (Service Access Descriptor) indicates the method to convert the UPI to the UID or to the PACD, and describes the object service. The SAD includes the information such as the service name ("SVN"), the access type ("ATYP"), the interpretation condition ("RCON (Resolution Condition)"), and the subclass ("SCLS").

In accord with the above object, the method for accessing multiple services using a single ID of the present invention includes: (a) a single ID registration step in which a subscriber to a single ID service selects a single ID, and records UIDs for individual services or the PACD required by the individual services, to be accessed with the above single ID; (b) a step in which an individual service server (or the network requested by the individual service server) requests single ID interpretation, when an individual service is requested through the single ID registered in the said step (a); (c) a step in which an enquiry is made for the UID or PACD of an individual service registered in the said single ID registration step (a), and in which such UID or PACD is provided; and (d) a step in which an individual service server provides a service to the individual user who requested the service, using the UID or PACD provided in the said step (c).

Also, the system for accessing multiple services using a single ID of the present invention includes: a single ID server which records the single IDs selected by registered single ID users, and the UIDs of individual services or the PACDs required in the individual services to be accessed with the said single IDs; and an interpreter which requests single ID interpretation to the said single ID server according to the pre-determined protocol using the single ID, the SAD, the CU and/or the CA, as they become necessary, when an individual service server (or the network requested by the individual service server) requests single ID interpretation upon receiving a request for an

individual service through the single ID recorded in the said single ID server and which transmits the result of the interpretation to the individual service server (or the network requested by the individual service server).

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a diagram illustrating the unique identification ("UID") management method by a unified permanent identification ("UPI") registrant.

Fig. 2 is a diagram illustrating the UID management method by an individual service provider.

Fig. 3 is a diagram illustrating the relationship between the UPI and the registered UID.

Fig. 4 is a diagram illustrating a method of the end-user request as a type of the UPI translation into the UID.

Fig. 5 is a diagram illustrating a method of the network request as a type of the UPI translation into the UID.

Fig. 6 is a diagram illustrating a method which a UPI server uses to interpret a receiver's email address when a user sends email using the receiver's UPI.

Fig. 7 is a diagram illustrating how public personal information of a UPI registrant is accessed through the UPI in the method and the system for accessing multiple services using the UPI of the present invention.

Fig. 8 is a diagram illustrating how private personal information of a UPI registrant is accessed through the UPI in the method and the system for accessing multiple services using the UPI of the present invention.

Fig. 9 and Fig. 10 are diagrams illustrating flows of messages when private personal application context data ("PACD") is requested in the method and the system

for accessing multiple services using the UPI of the present invention. In Fig. 9, all the required certificates are provided. In Fig. 10, not all the required certificates are provided in the beginning but certain certificates are provided later upon the single ID server's requests.

Fig. 11 illustrates the UPI server reassignment at the time of UPI interpretation.

BEST MODE FOR CARRYING OUT THE INVENTION

A detailed description of the method and system for accessing multiple services using a single ID of the present invention is provided below with references to the drawings attached hereto.

A single ID of the present invention may be modified by a single ID registrant but the present invention can accomplish its maximum effect if a permanent single ID is used. Thus, an example of the UPI, which is a type of permanent single ID used by a single ID registrant without modification, is used in the following description. The following description, however, does not limit the scope of the present invention to the UPI because the single ID may be modified by a user according to the present invention.

Hereinafter, a service, which manages the UPI specified by each user and which allows access to multiple services using the UPI, is referred to as the "UPI service."

The format of UPI is a string of characters of a definite length which may be any combination of numbers, characters (including multi-lingual characters), and symbols. The UPI is unique within a UPI service.

In the method and system of the present invention, the UPI may be used after the UPI is applied for and registered at a UPI server and after registration of the single ID (hereinafter, referred to as "UID (Unique Identifier)") for an individual service that may be accessed through the UPI or of the personal information required in the individual

service (hereinafter, referred to as "PACD (Personal Application Context Data)"). Registration of the UID or PACD may be done simultaneously with UPI application and registration, or it may be done independently after UPI registration.

The format and usage of the UID or the PACD are defined by each system providing each individual service and are independent of the UPI. Generally, while the UID is system-dependent, machine-friendly, and service provider-dependent, the UPI is user-friendly and permanent as an identifier unifying identifiers for various different services.

The UID, such as an email address for the email service and a phone number for the telephone service, has a strong feature of identifying users. The PACD is the data required to provide individual services for a service requester. The PACD is broader in definition than the UID and is weaker in its feature of identifying users. A credit card number for the credit card on-line payment service, which is a type of data requested by an individual service, is an example of the PACD. The UID and the PACD, however, are different only in their concepts, and the method and the system of the present invention does not distinguish the UID and the PACD. Thus, in the following description, the UID is used for the convenience of explanation. Using the UID for explanation in this application by no means limits the applicability of the present invention application to the PACD.

In addition to those described above, electronic cash or cyber money, the business type code or business type name of a listed company for stock exchange services, and the tracking number, the bank account, personal information and the job information for delivery services may be examples of the UID or the PACD of the present invention.

In the registration process of the UPI, it may be necessary to add or change the

UIDs of services which may be accessed by the registered UPI. This process is called the "UID management" process. In the UID management process, the registered UID may be changed or a new UID may be registered.

There are two methods of UID management. In the first method, which is the UID management method by a registered user, a UPI registrant directly accesses a UPI service to record or change the UID for each service. In the second method, which is the UID management method by an individual service provider, each individual service provider registers its own service and the subscriber's UID with the subscriber's pre-registered UPI, at the time when the service provider approves the user's subscription to its service.

Fig. 1 is a diagram illustrating the UID management method by a UPI registrant. As shown in Fig. 1, in the registrant management method, a registrant (11) may register a UID, such as a URL for the home-page service, an address for an email service, or a phone number for a telephone service, with a UPI service center (12). The user may also search, change or delete the UID. The UPI service center (12) then returns the result of the user's request.

Fig. 2 is a diagram illustrating the UID management method by an individual service provider.

In the method shown in Fig. 2a, if a service subscriber is a UPI registrant, the Service-A provider accesses the UPI service center at the time of the UPI registrant's subscription to Service-A, to additionally register the Service-A's UID to the pre-registered UPI of the subscriber.

In the method shown in Fig. 2b, if a UPI registrant desires to change the service provider for a same type of service, a new service provider renews the UID of the UPI registrant. Then, the UPI service center notifies the old service provider of such fact.

In Fig. 2b, when a UPI registrant subscribes to Service-A through a new service provider, the new service provider accesses the UPI service center to register the UID of the UPI registrant who has subscribed to its service. The UPI service center conducts a renewal process, in which Service-A's UID registration is changed, and then notifies the old Service-A provider of such fact. The UPI service center, upon receiving an acknowledgement message from the old Service-A provider, returns the registration result to the new Service-A provider.

For example, if a UPI registrant who uses the email service desires to change the email service provider, the email address of the UPI registrant, which is the UID of the email service, will be changed. In such case, according to the method illustrated in Fig. 2b, the email service provider to which the UPI registrant has newly subscribed, accesses the UPI service center to change the email address that matches the UPI of the registered user. Then, the UPI service center notifies the old email service provider of such change.

In the method shown in Fig. 2c, a certificate of user ("CU") or a certificate of application ("CA") is requested at the time when a service provider registers the user UID. In this method, which may be adopted to prevent a service provider from illegitimately changing the UID registration, both the CU indicating the UPI registrant's permission and the CA of the service provider itself must be provided when a new service provider desires to register the UID.

In the present invention, there may be multiple UIDs which may be accessed by a UPI for one type of service. For example, because a UPI registrant may have multiple email addresses for the email service, multiple UIDs for the email service should be matched to a single UPI. In this occasion, a UPI registrant registers multiple UIDs for one type of service.

When the UPI is registered through the methods described above and when the UIDs for the services to be accessed by the registered UPI are registered and managed, the UPI service translates the UPI into the UID required in the service requested by an individual service requester. Consequently, many services such as email services, telephone services, and payment services through the Internet, etc. may be accessed through the registered UID with only a single UPI.

Furthermore, with respect to a particular type of service (for example, the email service), systems of multiple service providers for the same type of service may be accessed with a single registered UPI.

The UPI of the present invention may be used not only by UPI registrants but also by other persons or organizations. For example, a person other than a UPI registrant may send email to a UPI registrant using the UPI. Thus, in the following, the "user" who requests an individual service using the UPI means not only a UPI registrant who uses his or her own registered UPI, but also a person or an organization requesting an individual service using a UPI registered by another person.

Fig. 3 is a diagram illustrating the relationship between the UPI and the registered UID.

As shown in Fig. 3, if the UID of Service-A is UID-A and if the UID of service-B is UID-B, the formats and usage of the UIDs used in Service-A and service-B are different from each other. A single UPI, however, enables each service to be accessed through translation. For example, if Service-A is a telephone service, then UID-A will be a phone number and if Service-B is an email service, then UID-B will be an email address. As types of the UPI translation into the UID, the present invention provides a method of the end-user request and a method of the network request.

Fig. 4 is a type of the UPI translation into the UID, which illustrates a method of the end-user request. As shown in Fig. 4, in the method of the end-user request, a client who requests a service controls the UPI translation.

First of all, (a) when an end-user requests the client (41) to provide Service-! using the UPI, (b) the client (41) requests that the UPI server (42) translate the UPI into the UID of Service-A. (c) The UPI server (42) translates the UPI into Service-A's UID and then provides the client (41) with the translated UID. (d) The client (41) who obtained the UID of Service-A from the UPI server (42) requests the system which provides Service-A (43) to provide the service in a customary manner. (e) The system which provides Service-A provides the client with Service-A in a customary manner.

Fig. 5 is a type of the UPI translation into the UID, which illustrates a method of the network request. As shown in Fig. 5, in the method of the network request, a network issues a request for UPI translation to a UPI server and the service is provided as a result.

First of all, (a) from a remote terminal (a virtual terminal, a graphic terminal, or an HTTP client terminal, etc.), each individual service user issues a request for the service to the network (52) using the UPI. The network (52) includes the network access node, the service proxy and the service node. A web-mail system as a part of the email service network is an example of the service node. (b) The network (52) requests the UPI server (53) to translate the UPI for the service requested by the user. (c) The UPI server (53) translates the UPI into the UID corresponding to the requested service and provides the network (52) with the UID. (d) When the network (52) requests the corresponding service provision system (54) to provide the service, using the UDI, (e)

the service provision system (54) provides the requested service. The object which receives the service may be the network (52) or the remote terminal (51) of the user, depending on the type of provided service.

Below set forth is explanation of the translation in which the UPI is interpreted into the UDI of a corresponding service as requested to the UPI server in the method and the system for accessing multiple services using the UPI of the present invention.

Fig. 6 illustrates the UPI server's interpretation of a receiver's email address in an occasion when a user sends email using the receiver's UPI.

(a) A user sends a receiver's UPI and prepared email contents to a email client (61). (b) The email client (61), in order to interpret the UPI, sends a UPAD interpretation request to a UPAD interpreter (62). The UPAD is a parameter comprising the service access descriptors which may be the UPI, the service name ("SVN"), the access type ("ATYP"), and the subclass ("SCLS"), etc. In Fig. 6, the SVN of the service access descriptor is "email."

(c) The UPAD interpreter (62) transmits the UPAD to the UPI server (63) using a predetermined protocol and requests the UPI translation. (d) The UPI server (63) searches the information recorded in the UPI server (63) to obtain the UID of a corresponding service, the email address in this case, and then sends the obtained UID to the UPAD interpreter (62). If no corresponding UID was registered in the UPI server (63), the UPI server issues an error message. The UPI server (63) is composed of one or more computers.

(e) The email address which is the UID of the email service is transmitted to the email client (61) through the UPAD interpreter (62), and (f) the email client (61) transmits the email written by the user, using the email address.

In the method and the system for accessing multiple services using the UPI of the present invention, when there is a service request through a UPI, multiple UIDs may result from the interpretation for a single service. In such case, a UPI server provides the UID which is preferred the most by the UPI registrant based on the UPI registrant's specification, provides UIDs at a predetermined rate for each UID, or provides the entire list of UIDs. If the entire list of UIDs is provided, a service provider or a service requester selects one or more UIDs among the UIDs listed.

The above process is determined by interpretation conditions specified by a client requesting the UID and provision conditions specified by UPI server. Interpretation conditions of a client requesting the UID include "List", "Select," "Preferred," and "Except." Provision conditions of a UPI server are composed of "List," "Distribution," and "Preferred" in accordance with the UPI registrant's specification. If the client's interpretation condition is "Select," the client presents multiple UIDs or PACDs and the server selects one among those presented. In the condition "List," the client may deal with multiple UIDs or PACDs at one time and the server presents all UIDs or PACDs which may be used. In the condition "Preferred," the client presents multiple UIDs or PACDs and the server returns to the client the UID or the PACD which is preferred the most. In the condition "Except," the client presents the UID or the PACD which must be avoided and the server selects a UID or a PACD which is not the presented UID or PACD. Table 1 below describes results that may be returned in given client interpretation conditions and UPI server's provision conditions.

Table 1.

Client condition	Server condition	Server UIDs/PACDs	Result
List	List	A, B, C, D	A, B, C, D
	Distribution	A, B, C, D	One of them on ratio

	Preferred	A(P), B, C, D	A
		A, B(P2), C(P1), D(P3)	C
Select{A,C}	List	A, B, C, D	A
	Distribution	A, B, C, D	A or C
	Preferred	B(P), C, D	C
		A(P2), B(P1), C, D	A
Preferred	List	A, B, C, D	A
	Distribution	A, B, C, D	One of them
	Preferred	A(P1), B(P2), C, D	A
Except{A,C}	List	A, B, C, D	B, D
	Distribution	A, B, C, D	B or D
	Preferred	A(P1), B(P2), C, D	B

In the above Table 1, the priority is indicated in the following manner. If the UPI registrant designates one UID or PACD as preferred, such fact is indicated with 'P.' If the UPI registrants designates multiple UIDs or PACDs as preferred, 'P1,' 'P2,'... are used to indicate the relative priority. 'P1' is higher in priority than 'P2.' If there is no indication of priority in the UID or PACD, then the preference is determined by the order in the list of the UIDs or PACDs.

In the method and the system for accessing multiple services using the UPI of the present invention, the UID may be either public or private. In the process of the UPI translation into the UID, the public UID may be obtained without any certification but for the private UID, certificates are required. The UPI server provides the private UID only if certificates are valid.

It is the UPI registrant that institutes the certification request regarding private

UIDs. For example, a certification request may be set up for an email address, which is the UID for the email service, in order to prevent spam mail or virus mail. In this occasion, an email sender may receive the UPI service by using the certificate issued by the receiver. If the certificate used by the sender is a valid one, the UPI server transmits the receiver's email address to the email server on the sender's side and the email server on the sender's side sends the email written by the sender to the receiver's email address.

Whether the UID of each service is to be translated as a public UID or a private UID may be indicated in the SAD (Service Access Descriptor). In case of the public UID, there may be occasions where such indication is not necessary. The SAD comprises the service name, the access type, the subclass and the interpretation conditions. An element for accommodating a new service may be included in the SAD. When a private UID is accessed, the access type of the SAD would be "Private" and a required certificate is provided. In case of a public UID, the field of the access type may be omitted or it would be "Public." The subclass is a descriptor classifying multiple UIDs. When more than one UIDs are registered in the UPI for an individual service, the subclass classifies such UIDs and a group designated by the subclass' field is accessed.

In the method and the system for accessing multiple services using the UPI of the present invention, the UPI, in addition to searching the UID, works as a key to access the PACD, which is personal information required by each individual service.

For example, in a service unifying various credit cards, if the UPI registrant possesses a visa card, a master card and an American Express card, the credit card numbers may be accessed through one UPI. In other words, a service provider, through the method and the system for accessing multiple services using the UPI of the present

invention, may translate the UPI into a credit card number that is preferred by the user or the card member store. Because security must be maintained in accessing the private personal information such as the credit card number, only certain legitimate service providers will be allowed to access such private information.

Thus, in the present invention, personal information of a UPI registrant which may be obtained by using the UPI, includes public personal information and private personal information such as a credit card number, for which security maintenance is required. Such private personal information to be secured requires certification of the information requester and permission from the UPI registrant.

Fig. 7 illustrates how public personal information of a UPI registrant is accessed through a UPI in the method and the system for accessing multiple services using the UPI of the present invention.

First, (a) a user accesses an application service using a UPI. (b) An application service server (71) issues an interpretation request which includes the UPI and the SAD to a UPAD interpreter (72), in order to obtain the personal information (PACD) required for the service, using the UPI. (c) The UPAD interpreter (72) requests a UPI server (73) to conduct interpretation with the SAD and the UPI through the UPI protocol for obtaining the PACD. (d) The UPI server (73) searches the PACD with the SAD and the UPI, and transmits the PACD to the UPAD interpreter (72). If a corresponding PACD was not registered in the UPI server (73), an error message is issued. (e) The UPAD interpreter (72) transmits the PACD obtained from the UPI server (73) to the service server (71), and (f) the service server (71) provides the service requested by the user, using the PACD.

In order to access private personal information, certificates are necessary. The service server providing an application service must know which certificate is necessary

for the PACD to be requested. Otherwise, the response to the information request would be a rejection and the reason therefor. If such response is received, the application service server may re-request the information after preparing the required certificates.

As certificates necessary for accessing private personal information, there may be a certificate of user provided by a user for the purpose of certifying the user and a certificate of application provided by an application service server for certifying the application service. The certificate of user authenticates the user who presents the UPI and the certificate of application authenticates the application service subject which requests the private personal information. Depending on the nature of the application service, one or both of these certificates may be used.

The passwords, electronic signatures, or the application sequence numbers may be types of simple certificates. The application sequence number is an example made up of the sequence number of the category and the instance of the application service. In the example of credit card information, the password would be the secret code of the credit card, and the application sequence number may be composed of the inherent identifier of the credit card application service and the sequence number of the member store.

Fig. 8 illustrates a case where both a certificate of user ("CU") and a certificate of application ("CA") are required for accessing private personal information of a UPI registrant using a UPI, in the method and the system for accessing multiple services using the UPI of the present invention.

First, (a) a user accesses an application service with a UPI and a CU. (b) The server providing the application service (81) sends an interpretation request to the UPAD interpreter (82) in order to obtain the PACD required for the service, using the UPI, the

SAD, the CU, and the CA. (c) A UPAD interpreter (82) issues an interpretation request to a UPI server, with the UPI, the SAD, the CU and the CA, in accordance with the UPI protocol for obtaining the PACD. (d) The UPI server (83), after confirming the CU and the CA upon checking the access type of the information, searches the PACD by using the SAD and the UPI and then transmits the PACD to the UPAD interpreter (82). If the CU or the CA is not confirmed, an error message is transmitted. (e) The UPAD interpreter (82) transmits the PACD obtained from the UPI server (83) to the service server (81), and (f) the service server (81) provides the service requested by the user using the PACD.

Fig. 9 and Fig. 10 are diagrams illustrating flows of messages when private PACD is requested in the method and the system for accessing multiple services using the UPI of the present invention. In Fig. 9, all the required certificates are provided. In Fig. 10, however, not all the required certificates are provided in the beginning but certain certificates are provided later upon the single ID server's requests.

In Fig. 9, (a) a user (91) sends a service request to an application service server (92) with a UPI and a proper CU. (b) An application service server (92) issues an interpretation request to a UPAD interpreter (93) with the UPAD, the CU and the CA. (c) The UPAD interpreter (93) requests a UPI server (94) to conduct interpretation according to the protocol, and (d) the UPI server (94), in order to provide the service designated by the SAD, translates the UPI into the PACD and then transmits the PACD to the UPAD interpreter (93). If certification is necessary in translating the UPI into the PACD, certificates included in the interpretation request are used. (e) The translated PACD is transmitted to the application service (92), and (f) the application service (92) provides the inherent service by using the PACD.

In Fig. 10, (a) a user (101) issues a service request to an application service (102) only with a UPI. (b) The application service (102) sends an interpretation request to a UPAD interpreter (103) with the UPAD (UPI+SAD). (c) The UPAD interpreter (103) requests a UPI server (104) to conduct interpretation according to the protocol, and (d) the UPI server (104) sends a message requesting certification required for the interpretation request to the UPAD interpreter. (e) The UPAD interpreter (103) transmits this result to the application service (102), and (f) the application service (102) requests the user (101) to send the certificate of user. (g) Once the user (101) provides the certificate of user, (h) the application service (102) requests the UPAD interpreter (103) again to conduct the interpretation with the UPAD, the CU and the CA. (i) The UPAD interpreter (103) reissues an interpretation request to the UPI server (104), and (j) the UPI server (104), in order to provide the service designated by the SAD in the UPAD, interprets the UPI into the PACD and provides it for the UPAD interpreter (103). The CU and the CA are used in translating the UPI into the PACD. (k) The translated PACD is transmitted to the application service (102), and (l) the application service (102) provides the inherent service using the PACD.

A CU and a CA may be requested depending on the type of application service, and the types of certificates are also service-dependent. Generally, because the application service has information on which type of certificate is required, an application service sends a proper certificate when requesting interpretation. In such case, the SAD indicates that the access to the information is private. The UPI server uses the provided certificates in translating the UPI into the PACD in order to provide the service designated by the SAD.

On the other hand, the UPI of the present invention may reassign the issued

interpretation request to another UPI server. Because the UPI server has a database of a limited size, all the UPIs may not be provided by one server. In such case, the database is distributed and reassignment to a UPI server containing the corresponding data is made through the index indicating the data location of the UPI to be translated. Also, if the UPI server which translates the UPI is composed of a group of multiple servers which share a database, in order to avoid routing to a server group with a high workload, the present invention conducts reassignment to another UPI server group.

Fig. 11 illustrates the UPI server reassignment at the time of UPI interpretation.

First, (a) a user (111) issues a service request to the application service server (112) with a UPI and a CU (if necessary). (b) The application server (112) sends an interpretation request to the UPAD interpreter (113) with necessary certificates. (c) The UPAD interpreter (113) sends an interpretation request to the UPI server-A (114). The interpretation request includes the UPAD and the certificates. (d) The UPI server-A (114) issues the "Redirect" information which includes the address of the UPI server-B (115) and the reason for assigning a new UPI server which is to conduct interpretation requested by the UPAD interpreter (113). (e) If the UPAD interpreter (113) can send a UPAD interpretation request to the new UPI server-B (115), it sends such interpretation request to the new UPI server-B (115). Otherwise, the UPAD interpreter (113) returns the "Redirect" message to the application service server (112). (f) The application service server (112), after adding a new UPI server's address (USADDR), issues an interpretation request to the UPAD interpreter (113). (g) The UPAD interpreter (113) issues a UPAD interpretation request to the new UPI server-B (115). The UPI server-B (115) searches the demanded information from the database and confirms the CU and the CA if the access type is "Private." (h) The UPI server-B (115), after translating the UPI into the service data (SD), creates the information on the service data and a result

message of the interpretation request, and then sends them to the UPAD interpreter (113). (i) The UPAD interpreter (113) interprets the PACD of the message from the UPI server-B (115) and sends the result to the application service system (112). (j) The application service system (112) provides the user with the service using the information translated by the UPI server-B (115). The service data may be the UID or the PACD depending on the type of service.

The UPI server-A (114), instead of issuing "Redirect" message, may transmit an interpretation request to the UPI server-B (115). This can be determined by the structure of the UPI server. Issuing "Redirect" message, however, is more effective than relaying the interpretation request from the viewpoint of the UPI server-A.

As described above, the present invention provides methods and systems that allow a service user to access one or more various services using a single identifier ("ID"), without being restricted by formats of IDs defined by various individual services.

According to the method and the system for accessing multiple services using a single ID of the present invention, a single ID registrant manages and uses only a single ID and thus does not need to manage multiple IDs for individual services. Furthermore, even if a service provider for a particular service is changed and a corresponding ID is changed accordingly, the user does not need to spend time or efforts to announce such change in his or her ID.

WHAT IS CLAIMED IS

1. The method for accessing one or more services using a single ID, comprising:

(a) a single ID registration step in which a subscriber to a single ID service selects a single ID, and records UIDs for individual services or the PACD required by the individual services, to be accessed with the above single ID;

(b) a step in which an individual service server, or the network or the client requested by the individual service server requests single ID interpretation, when an individual service is requested through the single ID registered in the said step (a);

(c) a step in which an enquiry is made, in accordance with the request made in the said step (b), to search the UID or PACD of an individual service registered in the said single ID registration step (a), and in which such UID or PACD is provided; and

(d) a step in which an individual service server provides a service to the individual user who requested the service, using the UID or PACD provided in the said step (c).

2. A method for accessing multiple services using a single ID according to claim 1, wherein:

the said single ID is a unified permanent ID used in the method by a single ID registrant without any modification to the single ID registered in the said step (a).

3. A method for accessing multiple services using a single ID according to claim 1, wherein:

the said single ID registration step (a) includes a UID management process in which a pre-registered UID is changed or a new UID is recorded.

4. A method for accessing multiple services using a single ID according to claim 3, wherein:

the said UID management process is conducted by a single ID registrant, or by a service provider when the single ID registrant subscribes to the service.

5. A method for accessing multiple services using a single ID according to claim 3, further comprising:

a process to notify the old service provider of a change in service providers, if the registered UID for a service is changed to the UID of a new provider of the same type of service in the said UID management process.

6. A method for accessing multiple services using a single ID according to claim 4, further comprising:

a process to request a certificate of user if the UID management process is conducted by a single ID registrant.

7. A method for accessing multiple services using a single ID according to claim 4, further comprising:

a process to request a certificate of user and/or a certificate of application if the said UID management process is conducted by the requested service provider.

8. A method for accessing multiple services using a single ID according to claim 1, wherein:

the said step (b) requests UPI interpretation with the service access descriptor

("SAD") which includes the UPI, the service name and the access type.

9. A method for accessing multiple services using a single ID according to claim 8, wherein:

the access type contained in the said SAD may be public or private.

10. A method for accessing multiple services using a single ID according to claim 9, further comprising:

(e) a step in which a certificate of user ("CU") certifying the user and/or a certificate of application ("CA") certifying the service provider are requested if the access type contained in the said SAD is private.

11. A method for accessing multiple services using a single ID according to claim 10, wherein:

the CU and the CA requested in the said step (3) are determined by the service to be provided.

12. A method for accessing multiple services using a single ID according to claim 3, wherein:

UIDs or PACDs for other types of services are registered in the said single ID registration step (a).

13. A method for accessing multiple services using a single ID according to claim 3, wherein:

registered UIDs for a particular type of service may be more than one, because

multiple UIDs for one type of service are registered in the said single ID registration step (a) or because UIDs are added in the said UID management process.

14. A method for accessing multiple services using a single ID according to claim 13, wherein:

the said step (b) has interpretation conditions and the said step (c) has UID provision conditions, and a UID is selected and provided for a particular service, among multiple UIDs registered for a single service based upon the interpretation conditions and the provision conditions.

15. A method for accessing multiple services using a single ID according to claim 14, wherein:

the said interpretation conditions include "List," "Select," "Preferred," and "Except."

16. A method for accessing multiple services using a single ID according to claim 13, wherein:

the said provision conditions include "List," "Distribution," and "Preferred."

17. A method for accessing multiple services using a single ID according to claim 1, wherein:

the format of the said single ID is a string of a definite length, which is a combination of numbers, characters and symbols, etc.

18. A method for accessing multiple services using a single ID according to claim 1,

wherein:

the said UID or the said PACD may be a home page URL for the home page service, a phone number for a telephone service, a credit card number for a credit card on-line payment service, the electronic money or the cyber money, a business item code or name of a listed company for a stock exchange service, or a tracking number, a bank account, personal information, job information for a delivery service.

19. A method for accessing multiple services using a single ID according to claim 1, further comprising:

a step in which the interpretation request made in the said step (b) is reassigned to another single ID server.

20. A system for accessing multiple services using a single ID, comprising:

a single ID server which records the single IDs selected by registered single ID users, and the UIDs of individual services or the PACDs required in the individual services to be accessed by the said single IDs; and

an interpreter which requests the said single ID server to conduct single ID interpretation according to the pre-determined protocol, using the single ID, the SAD, the CU and/or the CA, as they become necessary, when an individual service is requested through the single ID recorded in the said single ID server and thus when single ID interpretation is required, and which transmits the result of the interpretation to the single ID interpretation requester.

21. A system for accessing multiple services using a single ID according to claim 20, wherein:

the said single ID interpretation requester is an individual service server, a network which received a service request from an individual service server, or a client computer which is an individual service user.

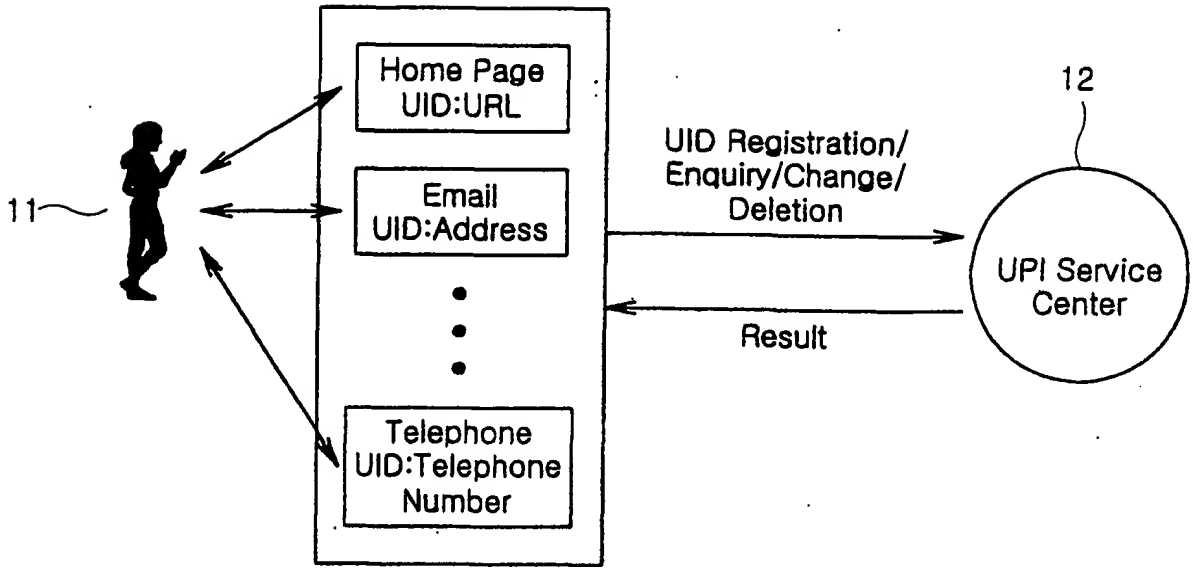
22. A system for accessing multiple services using a single ID according to claim 20, wherein:

the said single ID server is composed of multiple server groups which share a database of registered single IDs.

23. A system for accessing multiple services using a single ID according to claim 20, wherein:

the said single ID server is composed of multiple server groups which distribute and store the database of registered single IDs.

Fig.1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UID:URL
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Telephone
UID:Telephone
Number
11
12
UID Registration/
Enquiry/Change/
Deletion
Result
UPI Service
Center

Fig.2a

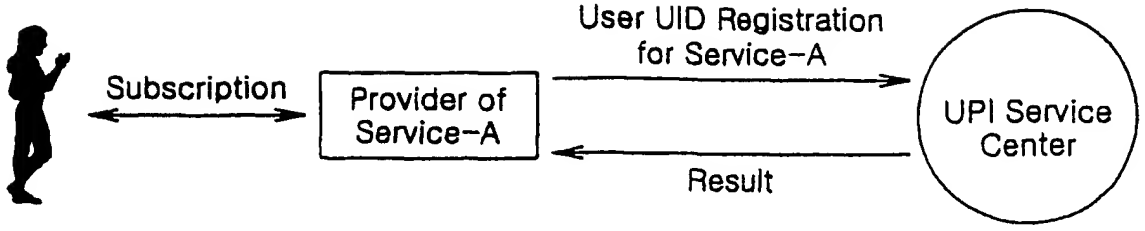


Fig.2b

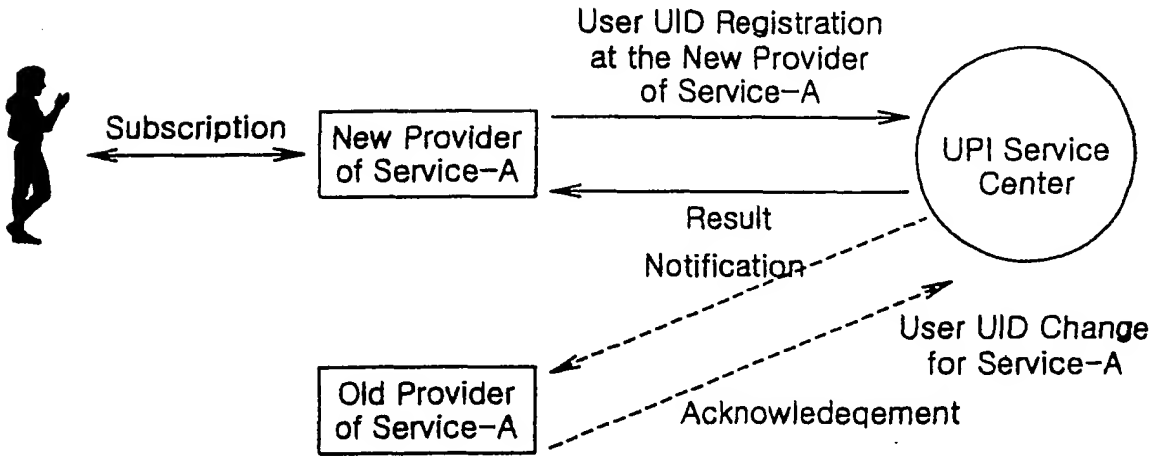


Fig.2c

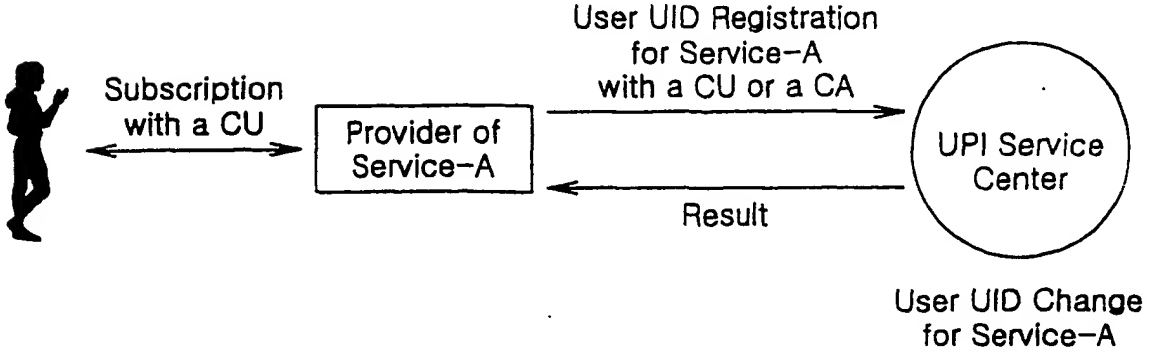


Fig.3

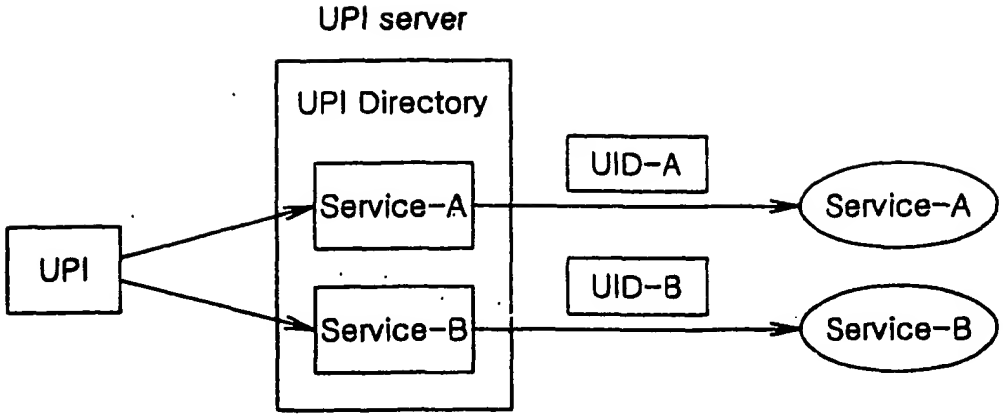

UPI server
UPI Directory
Service-A
Service-B
UPI
UID-A
UID-B
Service-A
Service-B

Fig.4

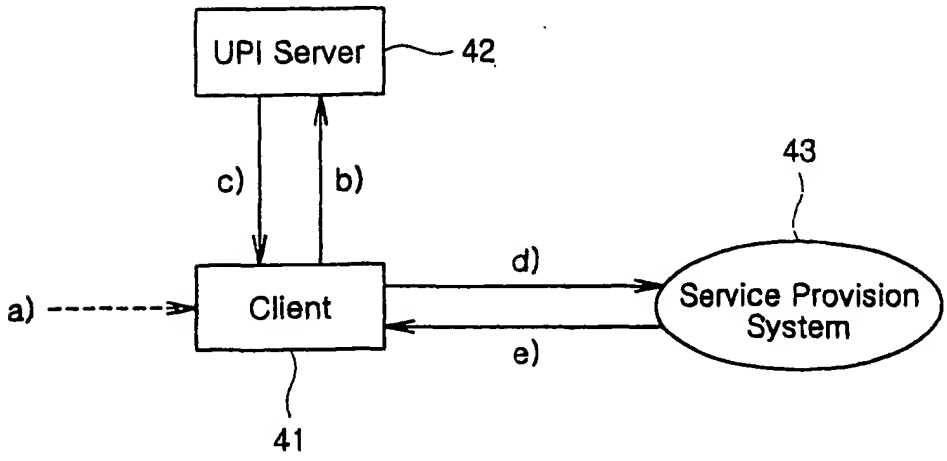

UPI Server
42
c)
b)
43
d)
a)
Client
Service Provision System
e)
41

Fig.5

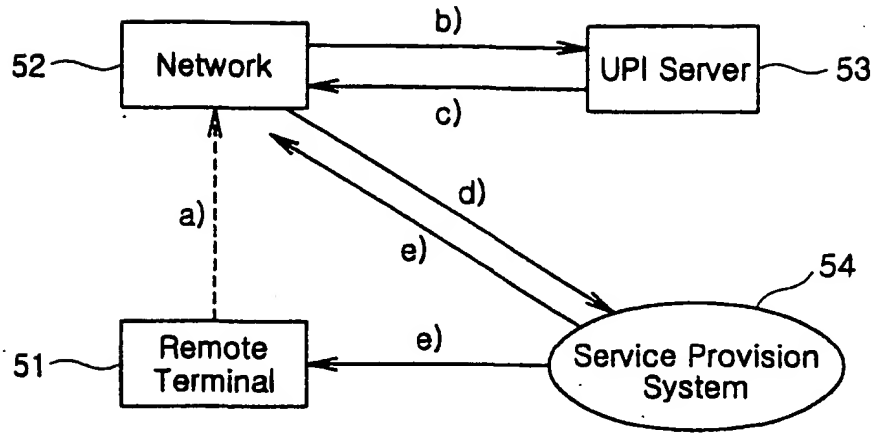

52
Network
b)
c)
UPI Server
53
a)
d)
e)
54
51
Remote Terminal
e)
Service Provision System

Fig.6

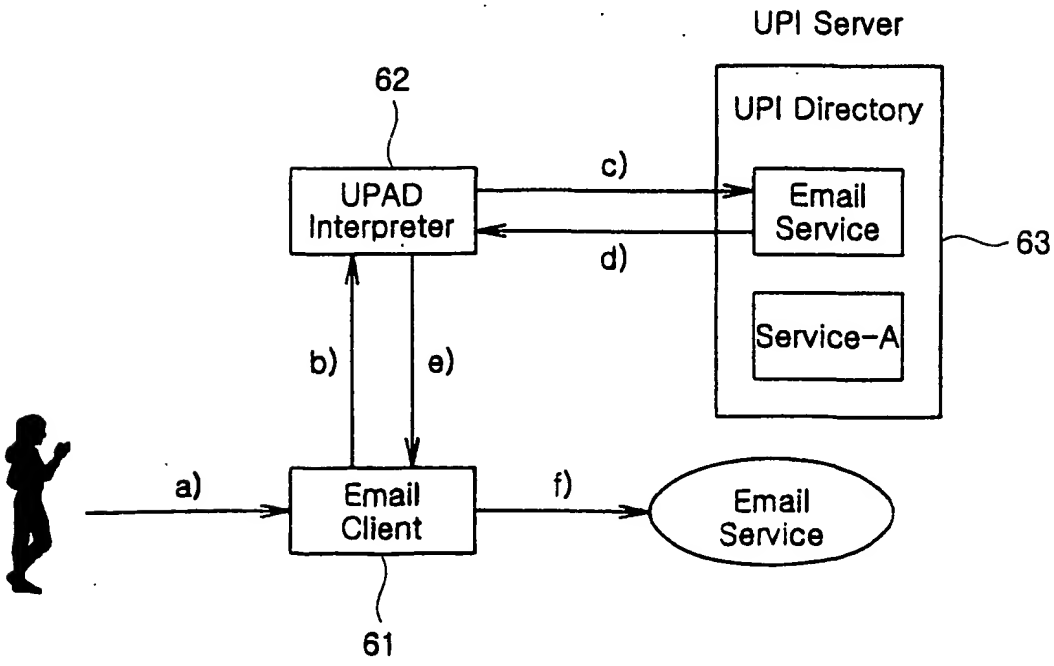

UPI Server
62
UPI Directory
c)
UPAD Interpreter
Email Service
63
d)
Service-A
b)
e)
a)
Email Client
f)
Email Service
61

Fig.7

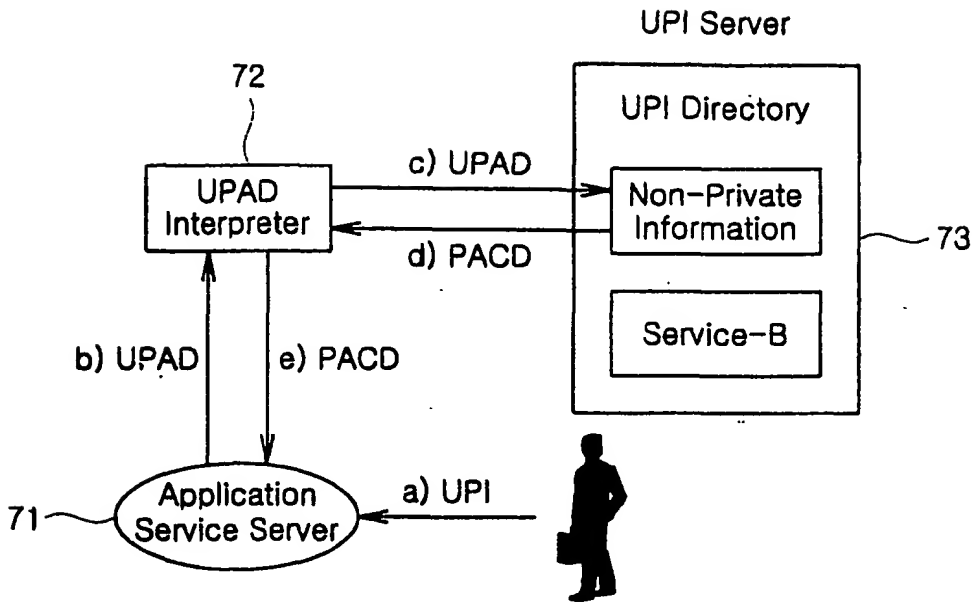

UPI Server
72
UPI Directory
c) UPAD
UPAD Interpreter
Non-Private Information
73
d) PACD
Service-B
b) UPAD
e) PACD
Application Service Server
a) UPI
71

Fig.8

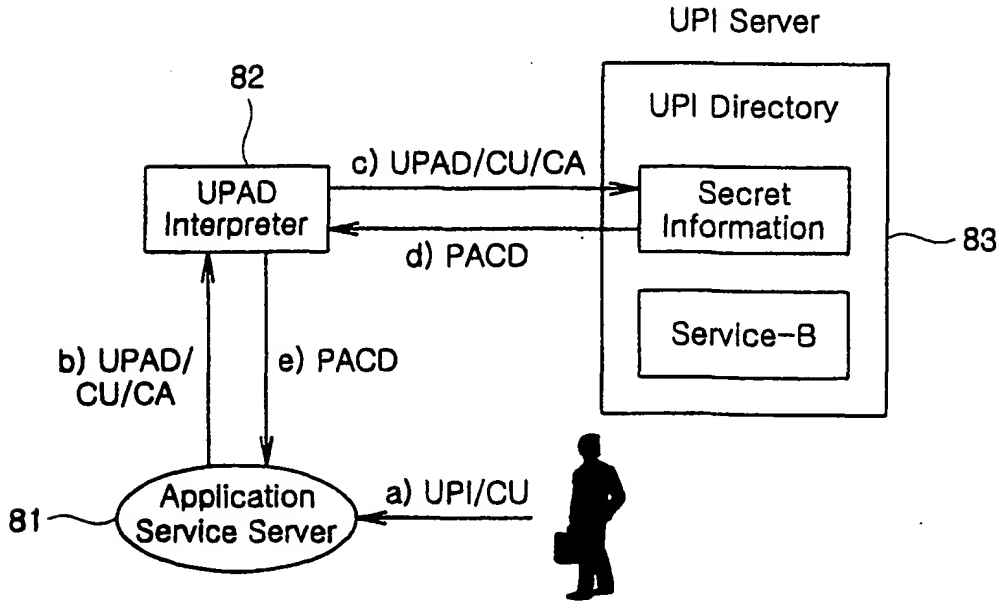

UPI Server
82
UPI Directory
c) UPAD/CU/CA
UPAD Interpreter
Secret Information
83
d) PACD
Service-B
b) UPAD/ CU/CA
e) PACD
Application Service Server
a) UPI/CU
81

Fig.9

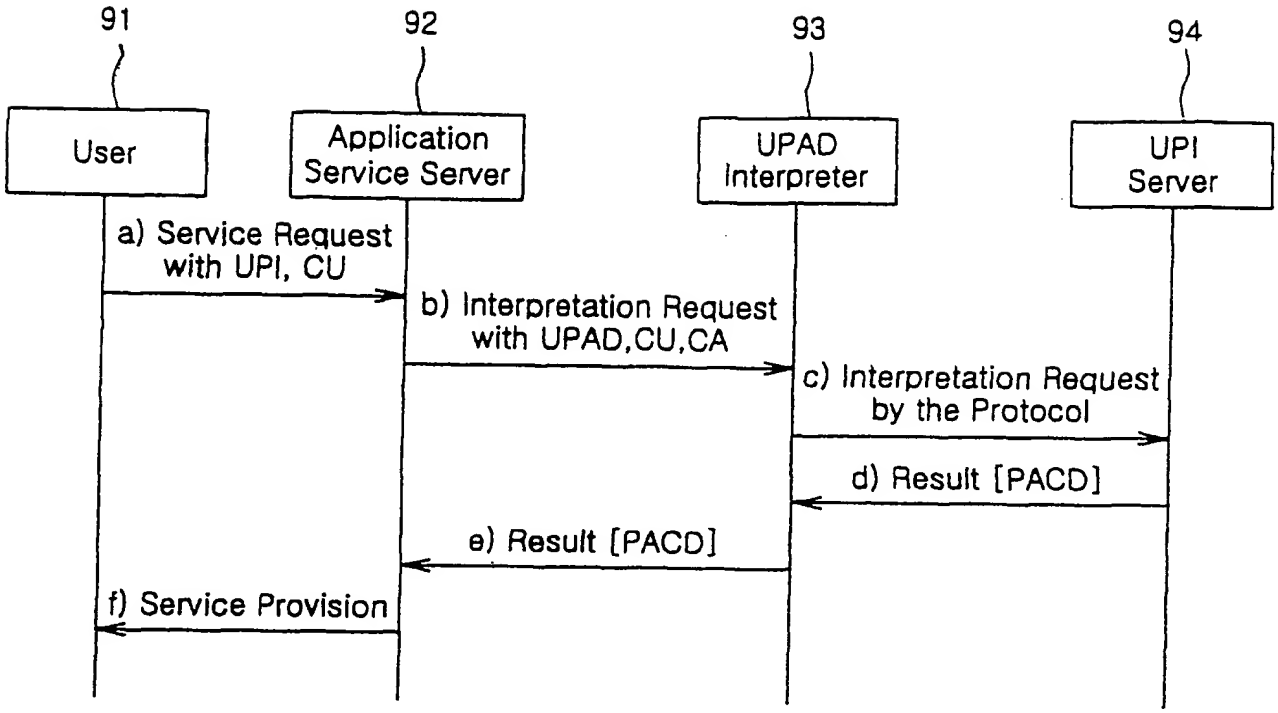

91
92
93
94
User
Application Service Server
UPAD Interpreter
UPI Server
a) Service Request with UPI, CU
b) Interpretation Request with UPAD,CU,CA
c) Interpretation Request by the Protocol
d) Result [PACD]
e) Result [PACD]
f) Service Provision

Fig.10

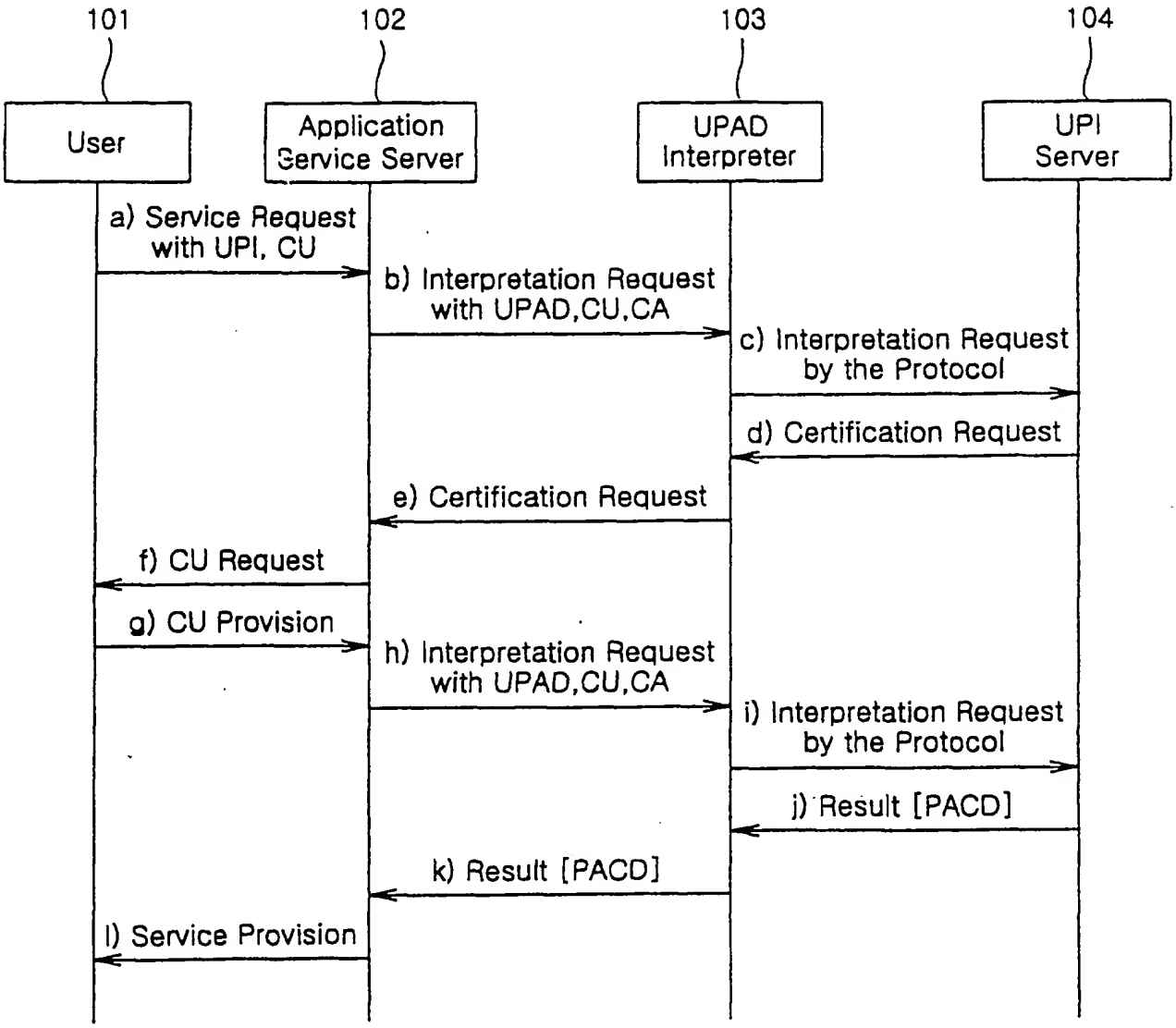
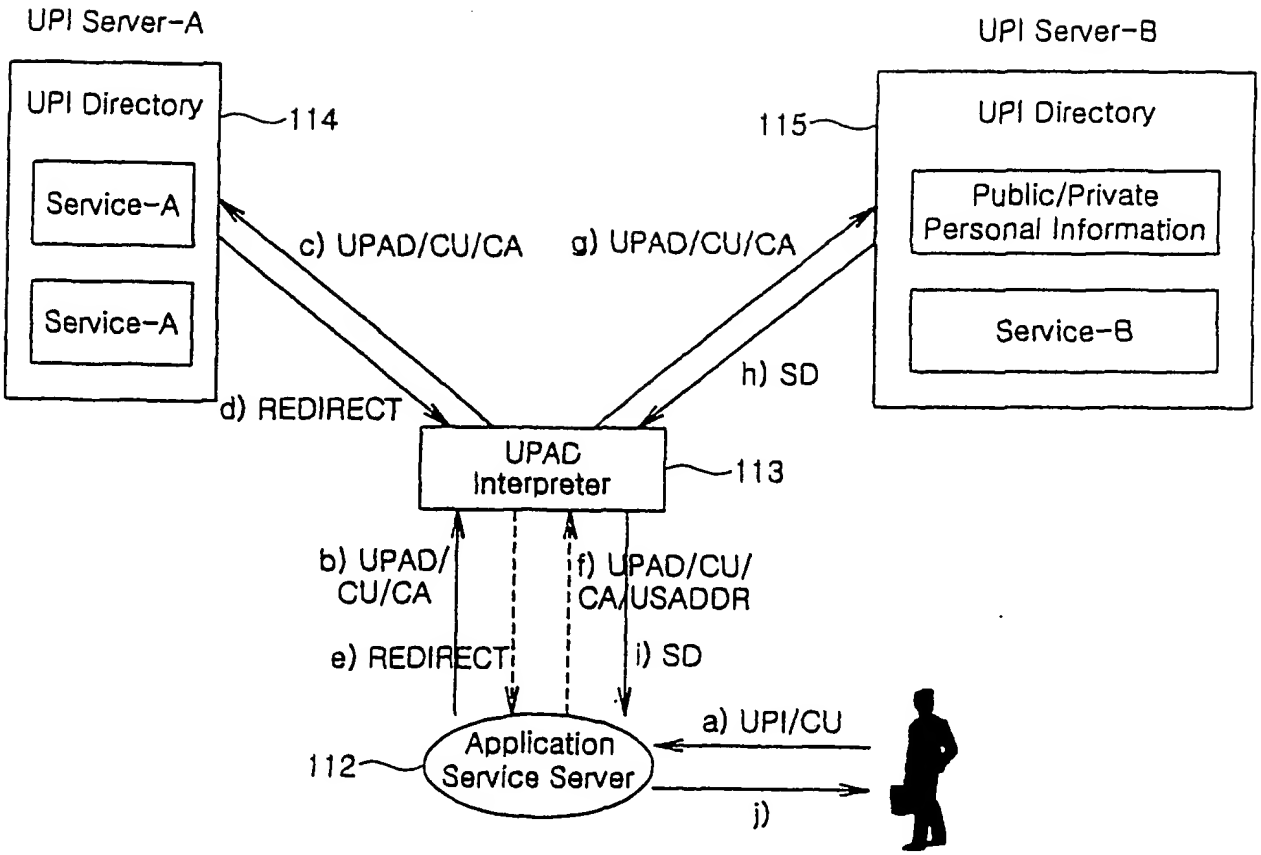

101
102
103
104
User
Application Service Server
UPAD Interpreter
UPI Server
a) Service Request with UPI, CU
b) Interpretation Request with UPAD,CU,CA
c) Interpretation Request by the Protocol
d) Certification Request
e) Certification Request
f) CU Request
g) CU Provision
h) Interpretation Request with UPAD,CU,CA
i) Interpretation Request by the Protocol
j) Result [PACD]
k) Result [PACD]
l) Service Provision

Fig.11


UPI Server-A
UPI Directory
114
Service-A
Service-A
UPI Server-B
115
UPI Directory
Public/Private Personal Information
Service-B
c) UPAD/CU/CA
g) UPAD/CU/CA
d) REDIRECT
h) SD
UPAD Interpreter
113
b) UPAD/ CU/CA
f) UPAD/CU/ CA/USADDR
e) REDIRECT
i) SD
a) UPI/CU
112
Application Service Server
j)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/KR 01/00230

CLASSIFICATION OF SUBJECT MATTER

IPC[7]: H04L 9/32, 29/06

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC[7]: G06F 1/00, H04L 9/32, 29/06, 29/12

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

WPI

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 0645688 A1 (KONINK NEDERLAND PTT NV) 29 March 1995 (29.03.95) *claims 1,7.*	1,20
A	WO 00/03526 A1 (OVERTON, J. et al) 20 January 2000 (20.01.00) *claims 1-4,7.*	1,20

☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.

* Special categories of cited documents:
„A" document defining the general state of the art which is not considered to be of particular relevance
„E" earlier application or patent but published on or after the international filing date
„L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
„O" document referring to an oral disclosure, use, exhibition or other means
„P" document published prior to the international filing date but later than the priority date claimed
„T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
„X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
„Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
„&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
21 June 2001 (21.06.2001)	18 July 2001 (18.07.2001)
Name and mailing adress of the ISA/AT Austrian Patent Office Kohlmarkt 8-10; A-1014 Vienna Facsimile No. 1/53424/535	Authorized officer FUSSY Telephone No. 1/53424/328

Form PCT/ISA/210 (second sheet) (July 1998)

INTERNATIONAL SEARCH REPORT

Information on patent family members

Int ional application No.
PCT/KR 01/00230

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP A1 645688	29-03-1995	NL A 9301633	18-04-1995
WO A 0003526		none	